

Relations: Data and Organisation Models

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Relations between Processes and other Aspects on Business Perspective



Kind of Relations

There are two kinds of relations from/to BPMN

■ Relations **to** process **models as a whole**

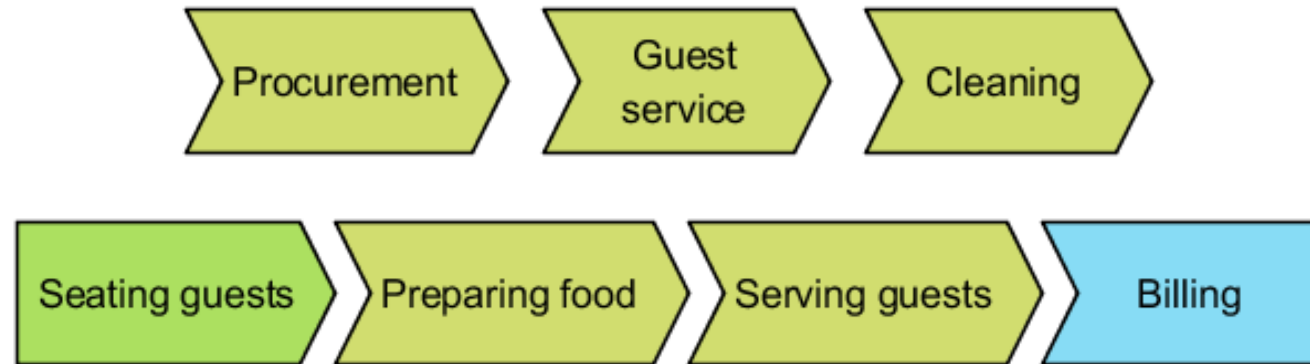
- ◆ Process maps
- ◆ Business motivations

■ Relations **from** process model elements to **elements** in other models

- ◆ data objects
- ◆ organisation model
- ◆ application models
- ◆ business rules



Process Maps



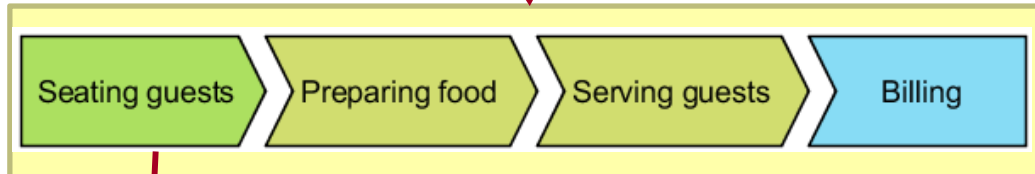
- Process maps give an overview of the business processes on a high level of abstraction
- Each element of a process maps represents a business process
- Process maps represent relationships between processes
 - ◆ grouping processes
 - ◆ logical ordering (e.g. procurement → production → sales)
- But: process maps do not represent control flow, i.e. a predecessor does not necessarily trigger its successor

Hierarchical Process Maps

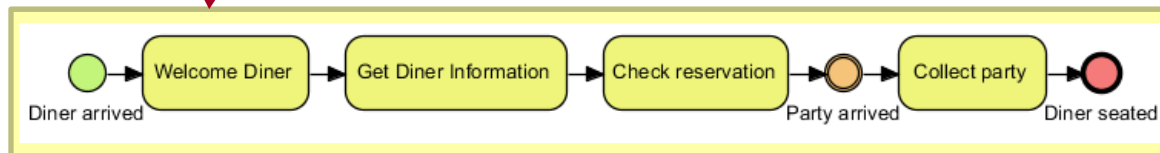
Level 1: Process map



Level 2: Process maps



Level 3: Business processes

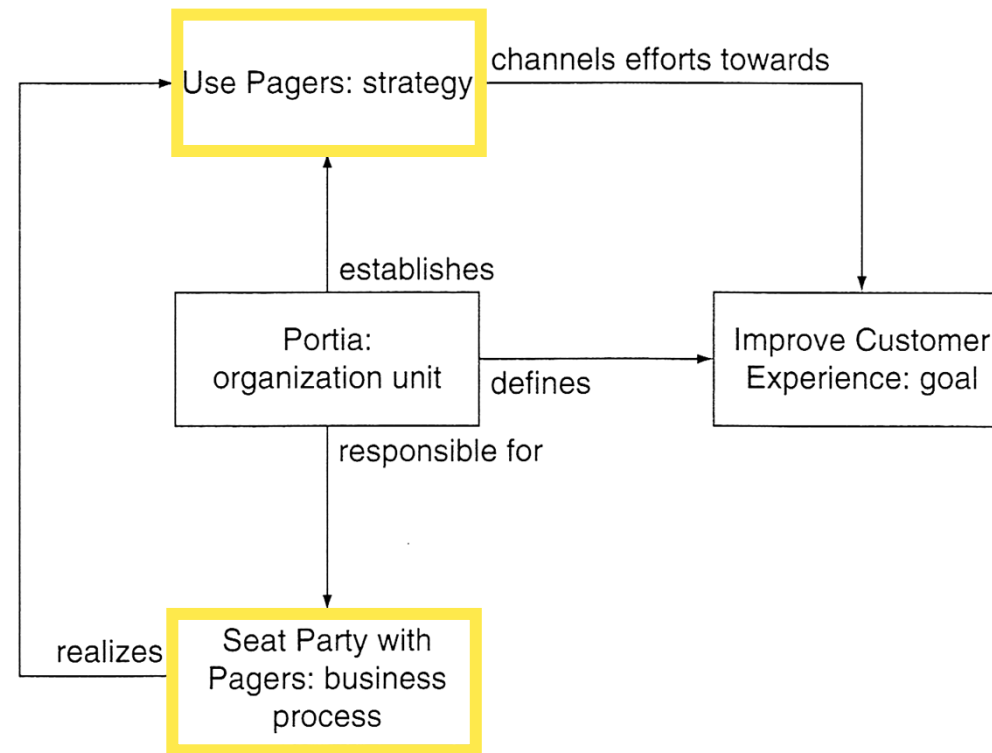


- Process maps can be organized hierarchically. An element either represents

- ◆ another set of processes (i.e. a process map)
- ◆ a business process (e.g. in BPMN)

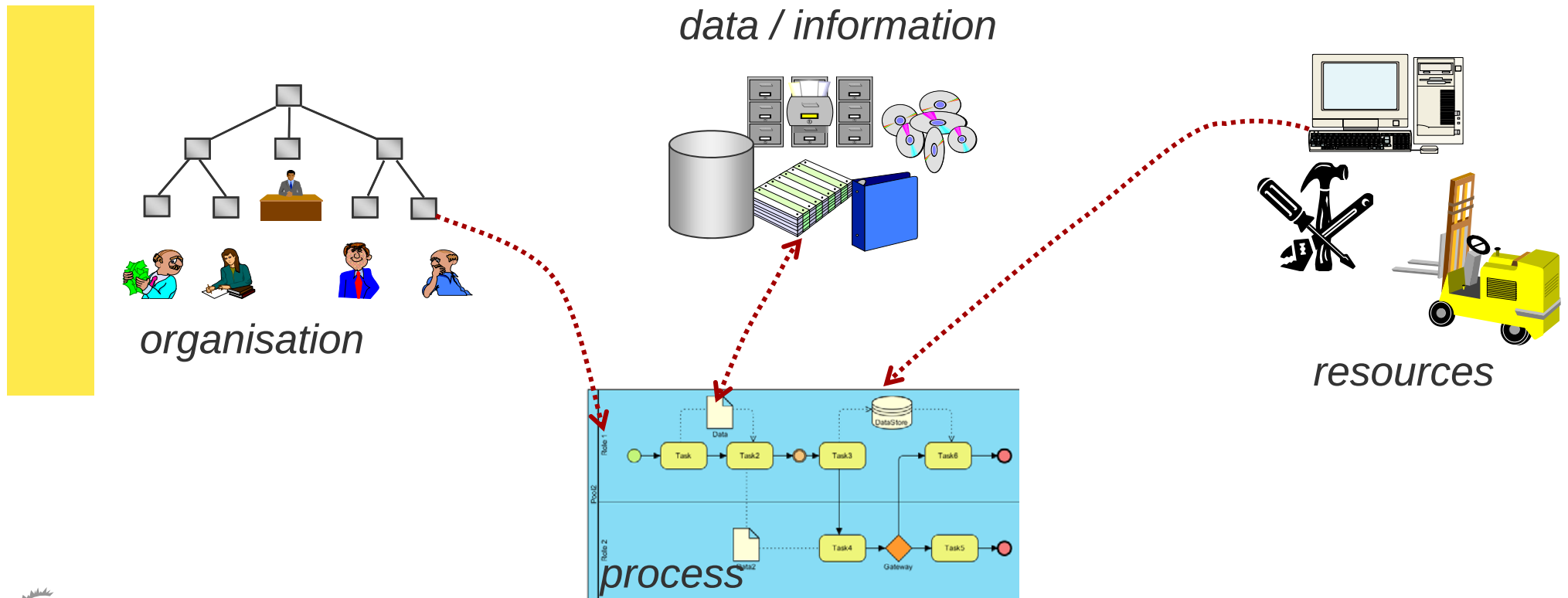
Business Motivation and Business Processes

■ Business processes implement courses of action

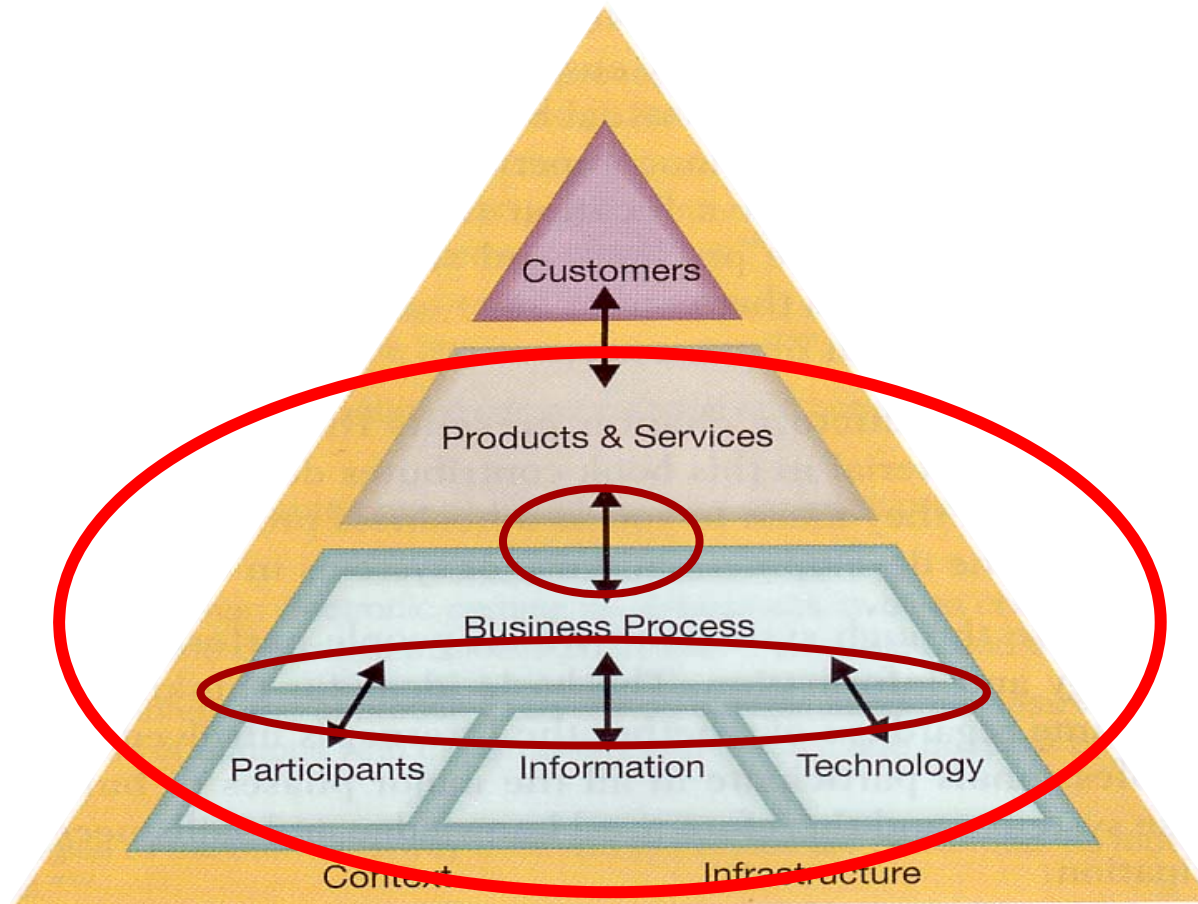


Process Models and their Relations

- Process models represent the flow of work.
- Processes are related to other aspects of business
- These are represented by references to other models.



Work-Centered Analysis



References in BPMN

- Artifacts in BPMN stand for data objects
 - ◆ Data object in BPMN can represent different kinds of data
 - structured data
 - documents
 - ◆ Data store (applications)
- Lanes and pools represent organisational elements
 - ◆ organisation units
 - ◆ roles
 - ◆ people

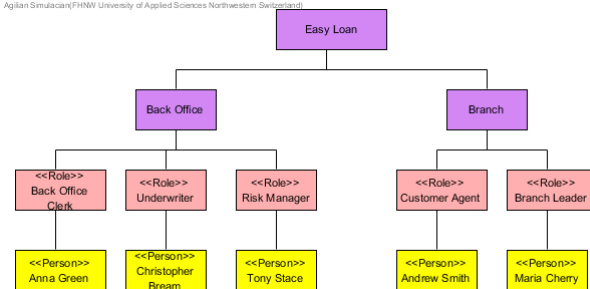
Data and organisation are modeled in their own models; their elements can be referenced from BPMN

Referencing

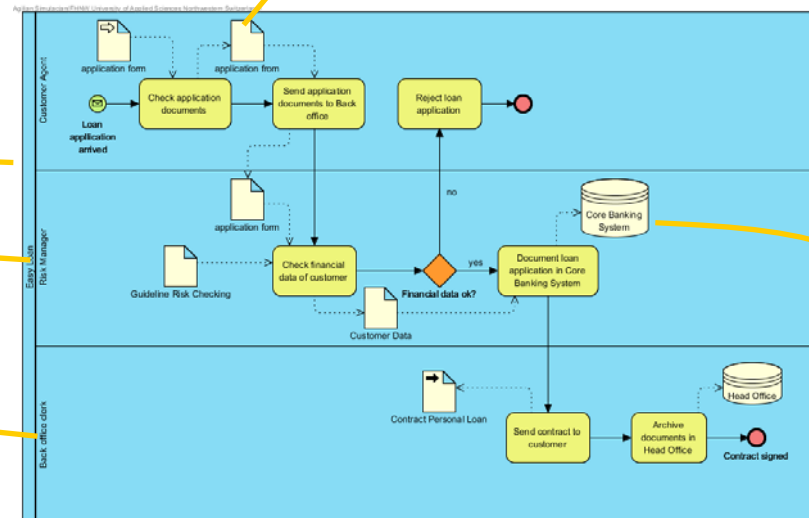
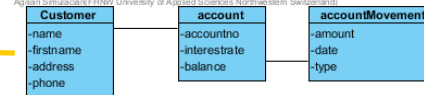
Data Objects can refer to

- data model
- document models

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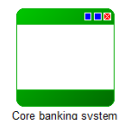
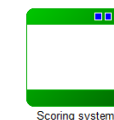
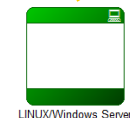


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Data stores may refer to IT model

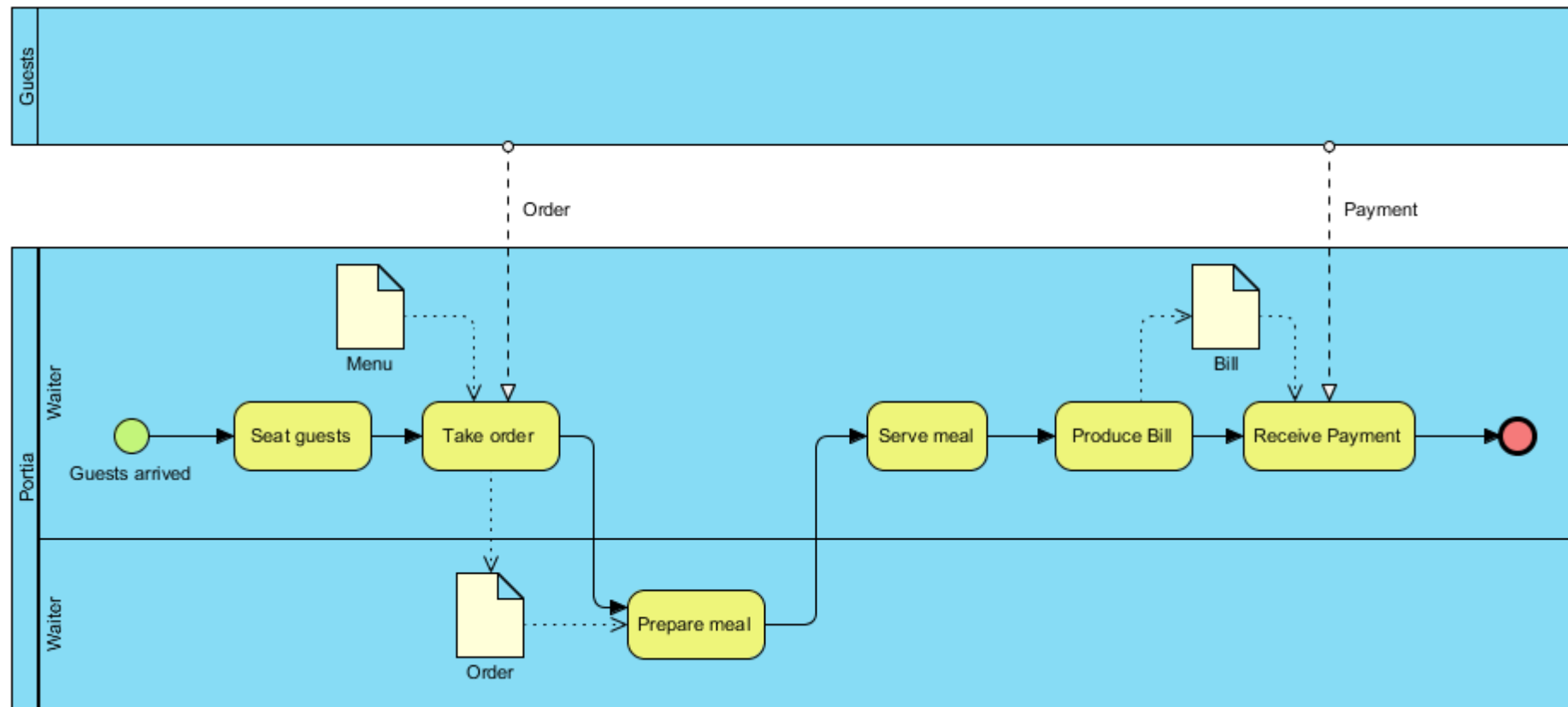
Lanes refer to elements in an organisation model



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Modeling Data

An Example Process



Modelling Data

- Data objects in BPMN can represent different kinds of data
 - ◆ structured data
 - ◆ documents
- Documents themselves either represent
 - ◆ **a document class** represents a generic documents for which a specific instance exists for each process instance
 - Example: The bill
 - ◆ **a specific document**
 - Example: The menu which the guests get to choose their meals
 - Hint: For a specific document we can specify a file name or a URL
- Another example: An application form is a specific document while an application would be represented as a class

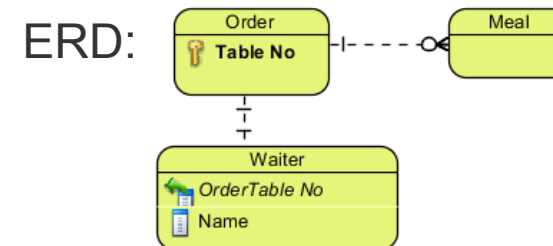
Data Models

■ Structured data can be represented for example as

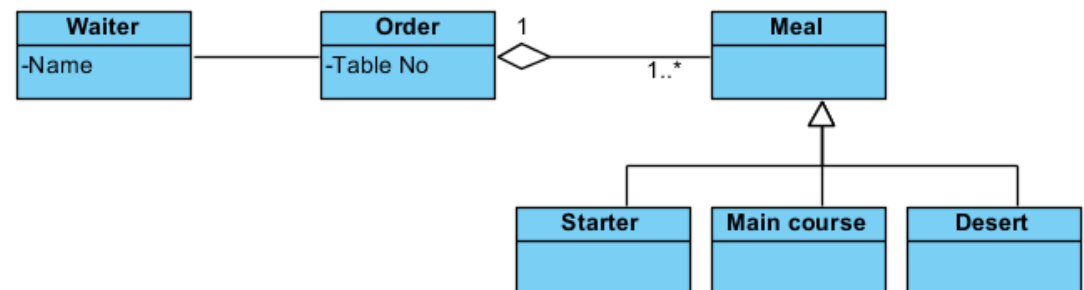
- ◆ Entity Relationship Diagram
- ◆ UML Class Diagram
- ◆ UML Object Diagram

■ Data models represent

- ◆ entities/classes
- ◆ columns/attributes
- ◆ relations/associations



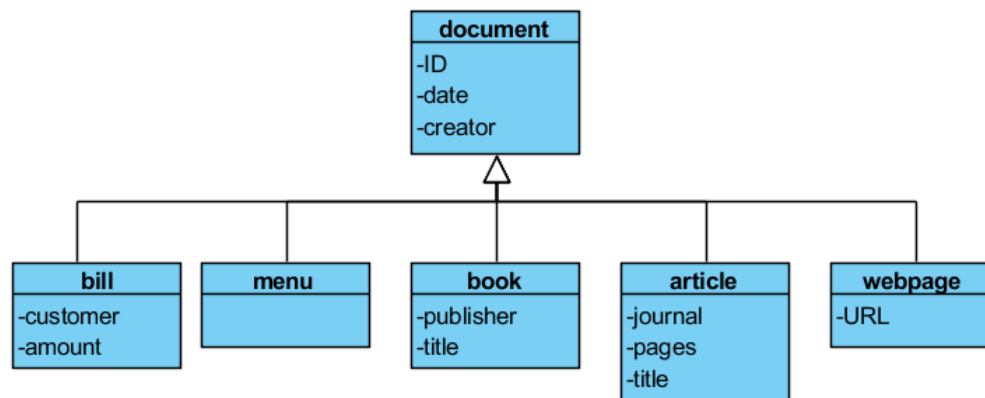
UML Class Diagram:



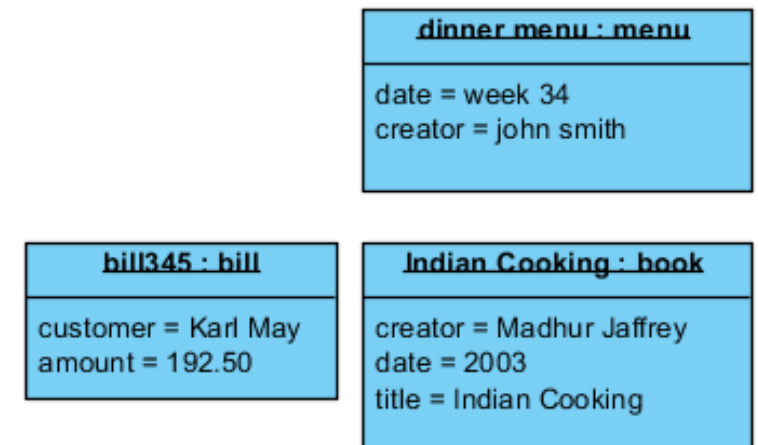
Document model

- Document models can be represented as UML class diagrams and object diagrams, too.
 - ◆ A document class is represented as a class object with
 - ◆ A specific document is represented as an object

document classes



specific documents



Application Models



Application Models

- BPMN does not have modeling elements for applications
- However, it might make sense also on business level to model references to applications
- There is no standard for modelling applications on business level
- Different systems have different model types for IT landscape, IT systems etc.
- A possibility would be to use
 - ◆ UML Component Diagrams (although it is more adequate for the IT level)
 - ◆ ArchiMate Diagrams (Application Level)



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Business Organisation Models

Literature

This chapter is mainly based on the following literature:

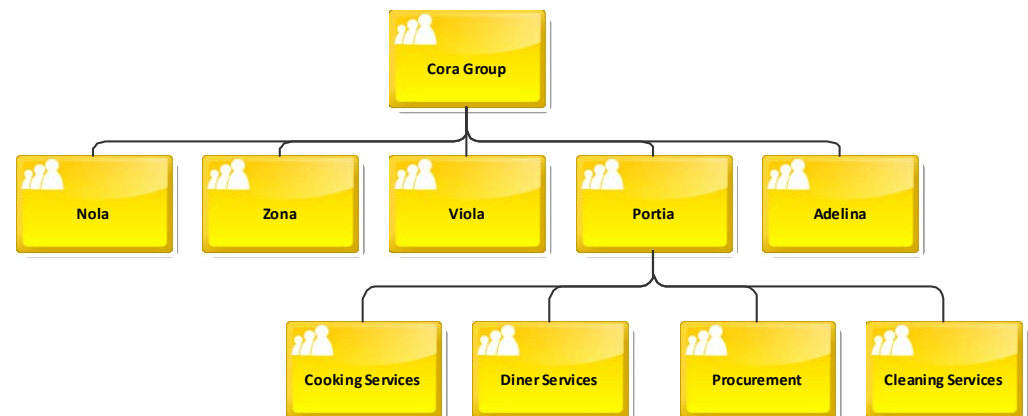
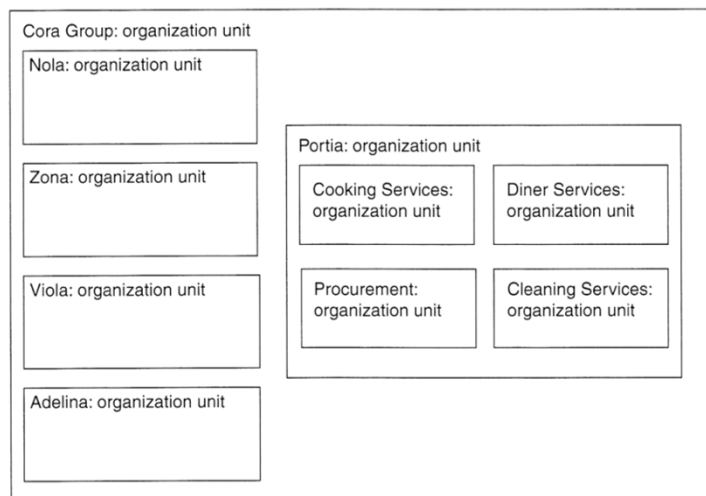
- Bridgeland David M.; Zahavi, Ron (2009): Business Modeling - A Practical Guide to Realizing Business Value. Morgan Kaufman Publishers. Chapter 4

Business Organisation Models

- A Business Organisation Model describes
 - ◆ how a company is organized – the business units, departments and working groups
 - ◆ the roles that people play in the company
 - ◆ the interactions – who interacts with whom to get the work done
 - ◆ the way the organisation interacts with other organisations
- Business Organisation models do not focus on how organisations perform their work (this is modeled as a business process)

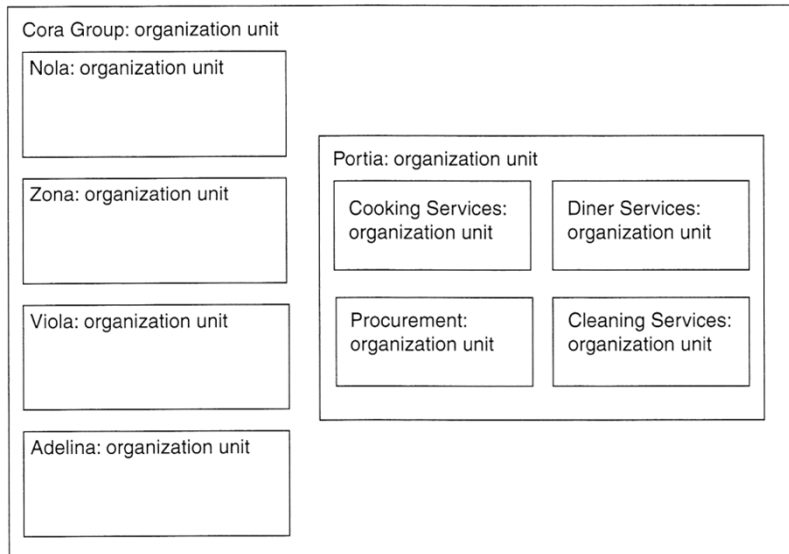
Business Organisation Modeling

- There is no standard for organisation modeling
 - ◆ nearly every modeling tool has its own approach
- Here are two possible representations of an hierarchical organisation unit

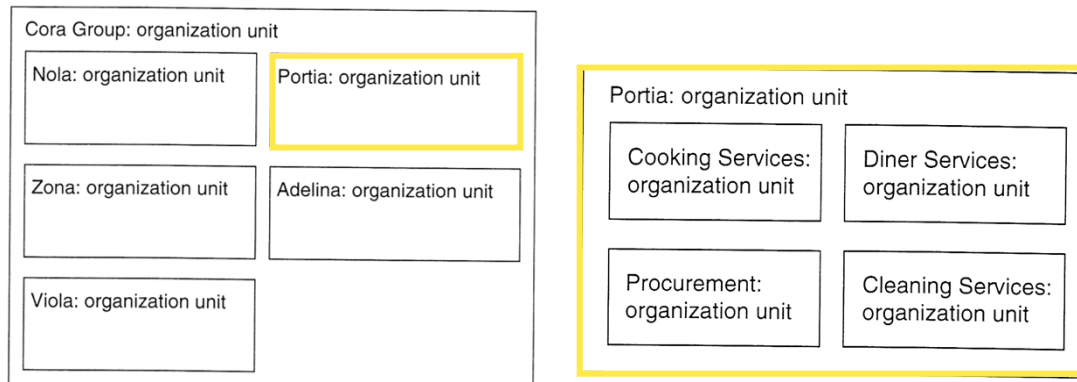


- Each organisation has a name and a description
 - ◆ The description contains details about the purpose of the organisation and the function it performs

Organisations and Suborganisations



- Business organisation models are inherently hierarchical
 - ◆ An organisation is composed of several other organisation which are again composed of other organisation
- The hierarchy can be represented
 - ◆ in one model or
 - ◆ in several models



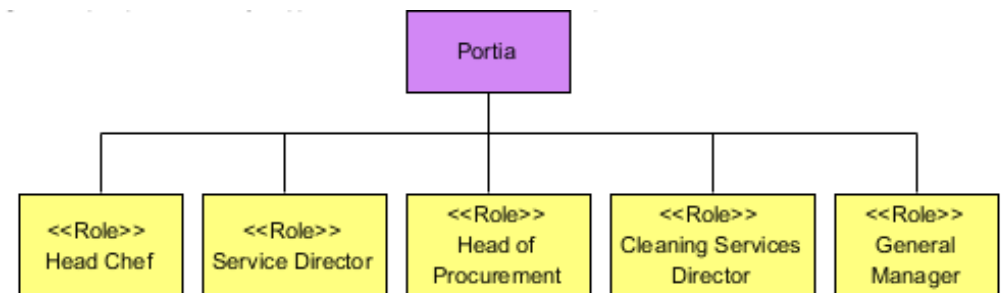
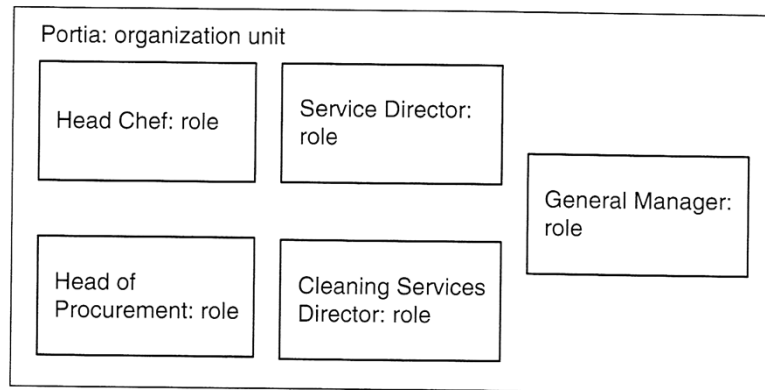
(Bridgeland & Zahavi 2009, p. 81ff)



Organisation with Roles

- Organisations contain roles
- A role is a responsibility a person assumes when he or she holds a position in an organisation
- People can at the same time play multiple roles

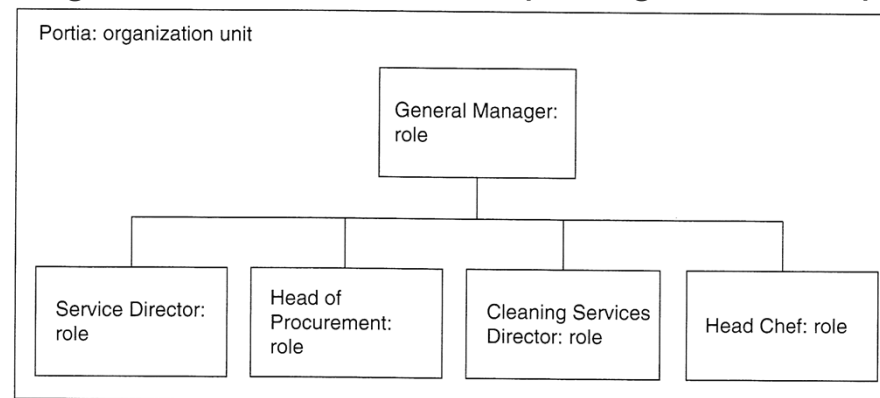
Organisation Model with roles



Reporting Relationships

- It can be useful to model the reporting relationships that exist between roles (not supported by many modeling tools)
- The supervising role can tell the reporting role what to do and when to do it
- Reporting only occurs between two roles, a role cannot report to an organisation

Organisation Model with reporting relationships

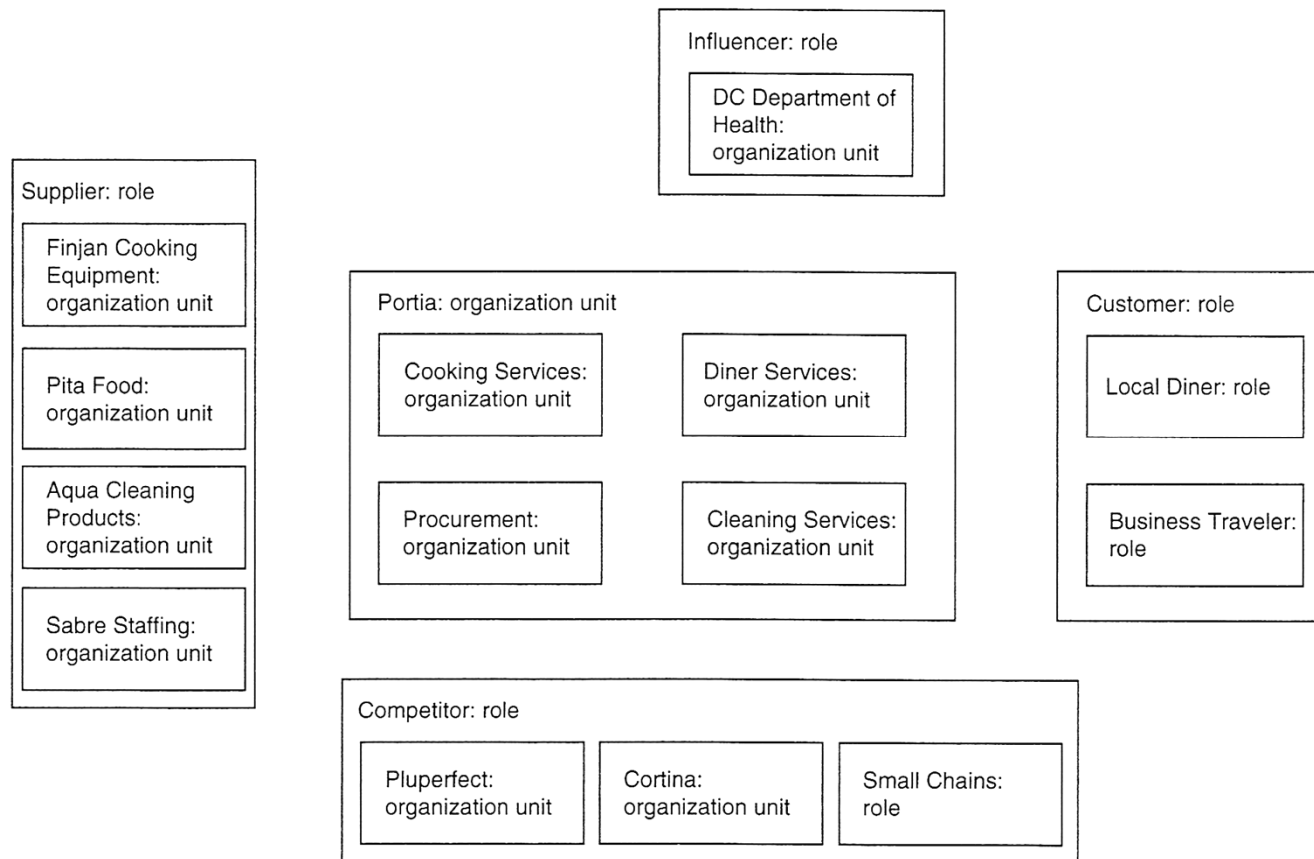


(Bridgeland & Zahavi 2009, p. 82ff)



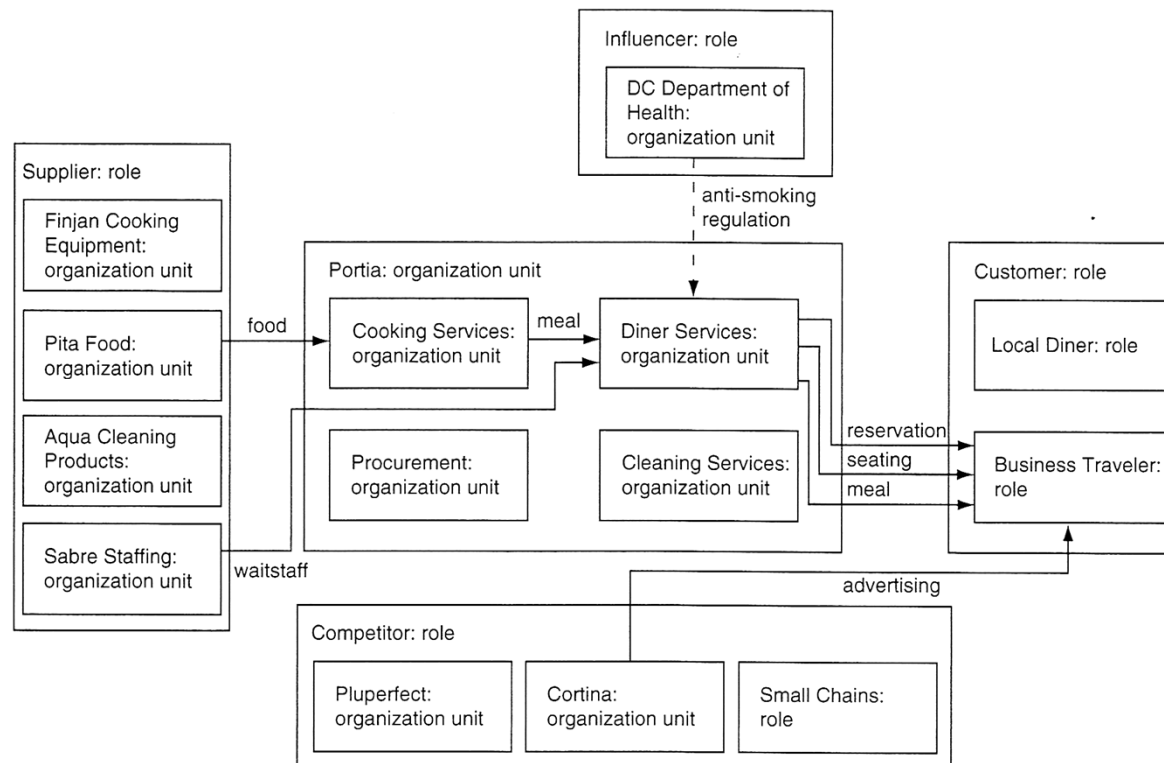
External Organisations and External Roles

Sometimes it can make sense to model also external roles



Interactions

- Interactions shows who works with whom
- An interaction is represented as an arrow between organisations and roles
- An interaction is labeled with the name of the deliverable, which can be information, a physical good, a service or money

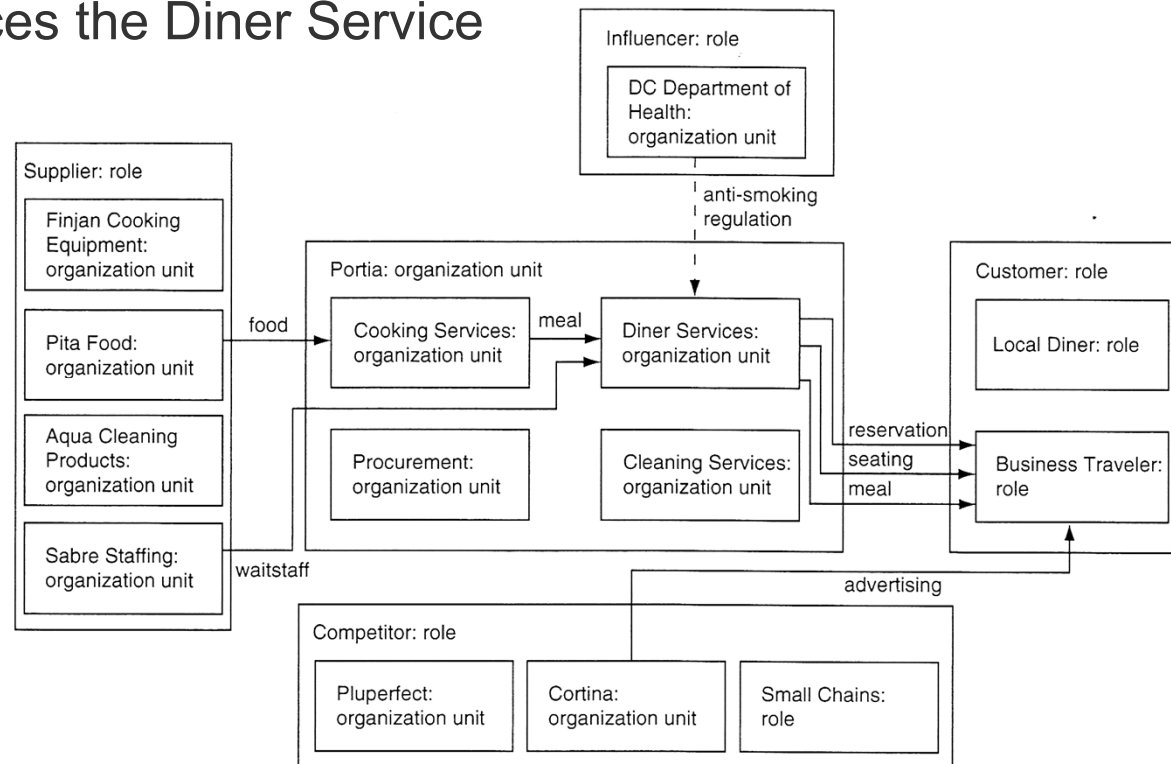


(Bridgeland & Zahavi 2009, p. 88ff)



Influences

- An organisation can have an influence on another organisation, even if they do not work together
- Influence is similar to interaction, but influence is indirect
- In the example the anti-smoking regulation of the DC Department of Health influences the Diner Service

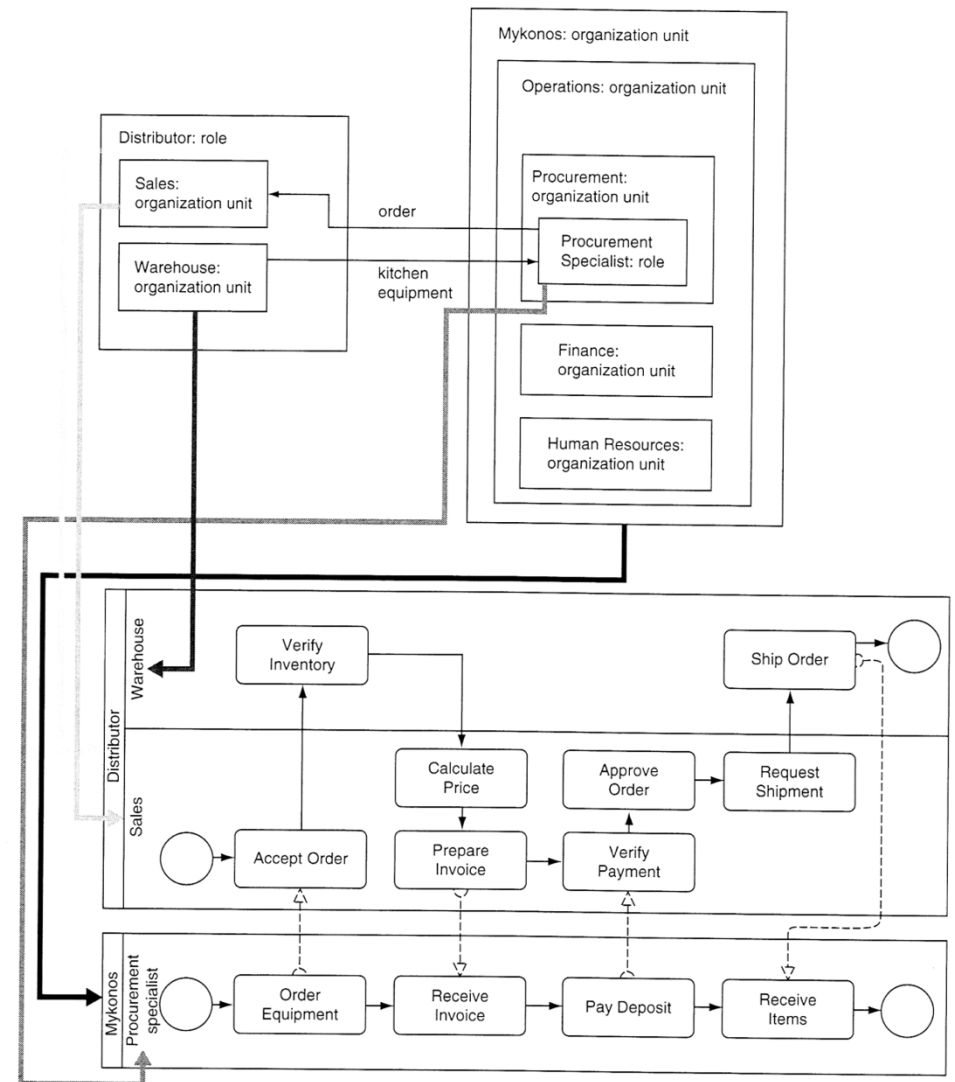


(Bridgeland & Zahavi 2009, p. 92f)



Business Processes, Organisations, and Interactions

- A pool contains a process
 - ◆ The pool is labeled with the participant who manages this process
- A lane in a process model is labeled with the participant who performs the action
 - ◆ an role or organisation in the pool
- Interactions to external roles/organisations are modeled as message flows in a process



(Bridgeland & Zahavi 2009, p. 130f)